



Brunsing Associates, Inc.

September 12, 2005

Project No. 691

Ms. Joan Fleck
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403

Groundwater Monitoring Report, July 2005

**505 Santa Rosa Avenue
Santa Rosa, California**

Dear Ms. Fleck:

This report presents the results of the groundwater monitoring performed at the Groth Motors site, 505 Santa Rosa Avenue, Santa Rosa, California (Plate 1) by Brunsing Associates, Inc. (BAI). Water level measurements and groundwater sampling were performed on July 13, 2005. This report was prepared to fulfill the monitoring requirements of the North Coast Regional Water Quality Control Board (RWQCB), as outlined in their letter dated December 30, 2002.

Site History

A Phase I Environmental Site Assessment (ESA) report was prepared for the site, as part of a real estate sale. The Phase I ESA found evidence that a gasoline station was formerly located at the site in the early 1950's. No records pertaining to the locations of underground storage tanks (USTs) or whether the USTs had been removed from beneath the site were discovered.

Based on the findings of the Phase I ESA, BAI conducted research regarding the adjacent property and performed a limited site investigation. A records review of the adjacent property located at 421 Santa Rosa Avenue (Plate 2) was performed to assess contamination at the 421 Santa Rosa Avenue site. The records review indicated groundwater contamination was present beneath the 421 Santa Rosa Avenue site and that groundwater flowed towards the northwest.

On August 3, 2000, BAI conducted a limited field investigation that included a geophysical survey and excavation of a trench in an area where a "suspicious" object was located during the geophysical survey. The trench was excavated south of the "suspicious" object because of the presence of an underground electrical line. No USTs were observed in the trench, however, petroleum hydrocarbon odors were observed in the soils removed from the trench. A soil sample was collected from the bottom of the trench and analyzed for total petroleum hydrocarbons (TPH) as gasoline, benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary

Ms. Joan Fleck
September 12, 2005
Page 2

butyl ether (MTBE). TPH as gasoline was reported at 42 milligrams per kilogram (mg/kg), and toluene, ethylbenzene, and xylenes were reported at 14 to 44 micrograms per kilogram ($\mu\text{g}/\text{kg}$).

On May 31, 2001, three USTs and the associated fuel lines were removed by John's Excavating. The USTs did not appear to have any obvious holes, however, one of the USTs was almost full of water. Groundwater was not encountered in the excavation. Ms. Joan Fleck of the RWQCB and a City of Santa Rosa Fire Department official were at the site on May 31, 2001, and based on the field observations and photoionization detector (PID) readings, requested that the area be over-excavated to remove as much of the contaminated soil as practical. One confirmation soil sample was collected from the bottom of the overexcavation and four sidewall soil samples were collected for analyses. Approximately 150 cubic yards of soil were excavated and stored onsite in 2 separate 75 cubic yard stockpiles. One 4-point composite soil sample was collected for analyses from each stockpile. The confirmation and stockpile composite soil samples were analyzed for TPH as gasoline, TPH as diesel, BTEX, and MTBE, and for total lead. The final depth of the excavation was approximately 12 feet below ground surface (bgs). Petroleum hydrocarbons were detected in confirmation soil samples collected from two of the sidewalls and from the bottom of the excavation. The results of the tank removals and over-excavation were presented in the BAI document "UST Removal Activities and Overexcavation", dated July 17, 2001.

Three groundwater monitoring wells (MW-1, MW-2, and MW-3; Plate 2) were installed at the site in April 2002. The well installation and initial groundwater sampling were reported in BAI's "Soil and Groundwater Investigation Report", dated August 13, 2002. A quarterly groundwater monitoring program has been conducted at the site since the installation of monitoring wells MW-1, MW-2, and MW-3.

Between March 15 and 17, 2004, BAI supervised the advancement of four soil borings and installation of two groundwater monitoring wells. Soil borings B-1 through B-3 were drilled on-site and soil boring B-4 and monitoring wells MW-4 and MW-5 were drilled off site (Plate 2). The results of the March 2004 drilling activities and groundwater monitoring event were included in the BAI document "Soil and Groundwater Investigation and Groundwater Monitoring Report", dated July 6, 2004.

Monitoring at the site is being coordinated with the monitoring being performed at 421 Santa Rosa Avenue. With the exception of the January 2005 groundwater level measurements, which were collected by BAI, groundwater level measurements and analytical data for the monitoring wells associated with the 421 Santa Rosa Avenue site (wells designated as CMW) are supplied by Clearwater Group Environmental Services (Clearwater), the consultant for 421 Santa Rosa Avenue site.



Water-level Measurements

Depth to water levels in the onsite monitoring wells (MW-1, MW-2, and MW-3) and off-site monitoring wells (MW-4 and MW-5), as well as Clearwater monitoring wells (CMW-4 and CMW-5), were measured on July 13, 2005 by BAI personnel. Depth to water measurements in monitoring wells associated with the 421 Santa Rosa Avenue site (CMW-1A, CMW-2A, CMW-4, CMW-5, CMW-6, and CMW-7) were also independently collected on July 13, 2005 by Clearwater personnel.

In the immediate vicinity of the former USTs, the July 13, 2005 predominant groundwater flow direction at 505 Santa Rosa Avenue was towards the northwest. In the vicinity of off site monitoring wells MW-4 and MW-5, the groundwater flow direction was also towards the northwest (Plate 3). The predominate groundwater flow direction at the 421 Santa Rosa Avenue site was towards the northwest (Plate 3). The July 13, 2005 calculated gradients for 505 and 421 Santa Rosa Avenue ranged from approximately 0.005 to 0.022 foot per foot (ft/ft).

The measured depth to groundwater in the on-site and off-site monitoring wells and off-site Clearwater monitoring wells CMW-4 and CMW-5 have ranged from approximately 2.51 feet below the top of the well casing in December 2002 to approximately 11.45 feet bgs in October 2002. Groundwater flow directions calculated for the 505 Santa Rosa Avenue site have ranged from southwest to north-northwest. A summary of historical groundwater elevations and approximate flow directions is provided in Table 1.

Groundwater Sampling

Monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5 were sampled on July 13, 2005. The monitoring wells were sampled in accordance with the sampling protocol presented in Appendix A. The groundwater monitoring field reports and sampling logs are provided in Appendix B. The July 13, 2005 groundwater samples were analyzed by BACE Analytical & Field Services (BAFS), a California-certified laboratory, for TPH as gasoline, BTEX, petroleum oxygenates, and lead scavengers using EPA Test Method 8260. The analytical results for monitoring wells CMW-4 and CMW-5 were provided by Clearwater Group Environmental Services.

For the July 13, 2005 sampling event, TPH as gasoline was detected in the samples collected from monitoring wells MW-2, MW-3, and MW-5 at reported concentrations of 13, 5.5 and 36 mg/l, respectively (Table 2). The groundwater sample collected from well MW-2 reportedly contained benzene, ethylbenzene, and xylenes at 53.1, 485, and 1,030 µg/l, respectively. Benzene, ethylbenzene, and xylenes were also reported in the monitoring well MW-5 sample at concentrations of 1,400, 2,720, and 547 µg/l, respectively. None of the analytes tested were detected in the MW-1 and MW-4 groundwater samples. A summary of the groundwater analytical results is provided in Table 2 and the well construction details are provided in Table 3.



As indicated by the data provided by Clearwater Group Environmental Services, TPH as gasoline and BTEX were reported in the CMW-4 and CMW-5 groundwater samples. The groundwater sample collected from monitoring well CMW-4 contained TPH as gasoline at 11 mg/l and BTEX ranging from 38 to 960 µg/l. The groundwater sample collected from monitoring well CMW-5 contained TPH as gasoline at 7.4 mg/l and BTEX ranging from 2.0 to 220 µg/l. Furthermore, the Clearwater analytical results indicate groundwater samples collected from monitoring wells CMW-1A, CMW-2A, CMW-7, CMW-8, and CMW-9 also contained petroleum hydrocarbon contamination. The complete analytical laboratory report for the July 13, 2005 MW-1, MW-2, MW-3, MW-4, and MW-5 samples is provided in Appendix C. The data provided by Clearwater is included in Appendix D.

Discussion and Recommendations

The analytical results of the July 2005 groundwater sampling event indicate TPH as gasoline concentrations decreased in wells MW-2 and MW-5 compared to the April 2005 analytical results. In addition, the benzene, ethylbenzene, and xylenes concentrations reported in the July 2005 MW-2 and MW-5 groundwater samples decreased compared to the April 2005 analytical results. The concentrations of TPH as gasoline, benzene, ethylbenzene, and xylenes reported in the July 2005 groundwater samples collected from wells MW-2 and MW-5 were stable or decreased compared to the July 2004 analytical results. The July 2005 analytical results indicate that the concentration of TPH as gasoline increased in the sample collected from well MW-3 when compared to the April 2005 analytical results. The analytical results for groundwater samples collected from monitoring well MW-1 were reported as non-detect for all analytes tested for the sixth consecutive quarter. No petroleum hydrocarbons have been reported in the MW-4 samples to date, with the exception of xylenes that were reported in September 2004.

Schedule

The next quarterly groundwater monitoring event is tentatively scheduled for October 2005. During the October 2005 monitoring event, an attempt to sample monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5 will be conducted.



Ms. Joan Fleck
September 12, 2005
Page 5

Should you have any questions regarding this report, please contact us at (707) 838-3027.

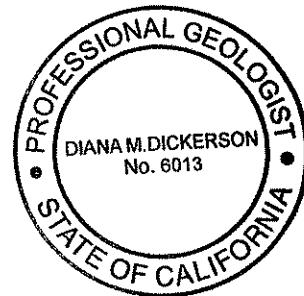
Sincerely,



Steve Silva
Project Geologist



Diana M. Dickerson, P.G., R.E.A.
Principal Geologist



cc: Ms. Virginia McNett, c/o McNett et al
Ms. Rosemarie Henninger
Mr. Gary Hursh
Mr. John Groth
Mr. Mark McCormick
Mr. Jim Ho

Attachments:

- | | |
|------------|----------------------------------------------|
| Table 1 | Groundwater Elevation Data |
| Table 2 | Groundwater Analytical Results |
| Table 3 | Well Construction Details |
| Plate 1 | Site Vicinity Map |
| Plate 2 | Site Map |
| Plate 3 | Groundwater Flow Map, July 13, 2005 |
| Appendix A | Groundwater Sampling Protocol |
| Appendix B | Groundwater Sampling Field Forms and Logs |
| Appendix C | Analytical Laboratory Report |
| Appendix D | Clearwater Group Environmental Services Data |



TABLES





TABLE 1
Groundwater Elevation Data
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Measured	Top of Casing Elevation (feet, MSL)	Depth to Fluid/Air Interface (feet)	Depth to Product/Water Interface (feet)	Elevation of Groundwater Uncorrected (feet, MSL)	Floating Product Thickness (feet)	Correction for Free Product (Factor of 0.76) ^A (feet)	Hydraulic Potential ^B (feet, MSL)	Predominant Groundwater Flow Direction and Approximate Gradient (ft/ft)
MW-1	4/26/2002	158.49	5.94	5.94	152.55	0.00	0.00	152.55	Southwest
MW-2	4/26/2002	157.60	5.15	5.15	152.45	0.00	0.00	152.45	0.005
MW-3	4/26/2002	158.49	5.64	5.64	152.85	0.00	0.00	152.85	
CMW-4	4/26/2002	156.91	NM						
CMW-5	4/26/2002	157.42	NM						
MW-1	5/6/2002	158.49	6.35	6.35	152.14	0.00	0.00	152.14	Southwest
MW-2	5/6/2002	157.60	5.53	5.53	152.07	0.00	0.00	152.07	0.005
MW-3	5/6/2002	158.49	6.02	6.02	152.47	0.00	0.00	152.47	
CMW-4	5/6/2002	156.91	NM						
CMW-5	5/6/2002	157.42	NM						
MW-1	6/27/2002	158.49	8.09	8.09	150.40	0.00	0.00	150.40	West
MW-2	6/27/2002	157.60	7.27	7.27	150.33	0.00	0.00	150.33	0.007
MW-3	6/27/2002	158.49	7.75	7.75	150.74	0.00	0.00	150.74	
CMW-4	6/27/2002	156.91	7.09	7.09	149.82	0.00	0.00	149.82	
CMW-5	6/27/2002	157.42	6.95	6.95	150.47	0.00	0.00	150.47	
MW-1	7/30/2002	158.49	9.33	9.33	149.16	0.00	0.00	149.16	West
MW-2	7/30/2002	157.60	8.47	8.47	149.13	0.00	0.00	149.13	0.007
MW-3	7/30/2002	158.49	8.93	8.93	149.56	0.00	0.00	149.56	
CMW-4	7/30/2002	156.91	8.22	8.22	148.69	0.00	0.00	148.69	
CMW-5	7/30/2002	157.42	8.08	8.08	149.34	0.00	0.00	149.34	



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MW-1	8/16/2002	158.49	9.81	9.81	148.68	0.00	0.00	148.68	West-Southwest 0.005
MW-2	8/16/2002	157.60	8.96	8.96	148.64	0.00	0.00	148.64	West-Southwest 0.005
MW-3	8/16/2002	158.49	9.39	9.39	149.10	0.00	0.00	149.10	West-Southwest 0.005
CMW-4	8/16/2002	156.91	8.61	8.61	148.30	0.00	0.00	148.30	West-Southwest 0.005
CMW-5	8/16/2002	157.42	8.49	8.49	148.93	0.00	0.00	148.93	West-Southwest 0.005
MW-1	9/10/2002	158.49	10.35	10.35	148.14	0.00	0.00	148.14	West-Southwest 0.005
MW-2	9/10/2002	157.60	9.41	9.41	148.19	0.00	0.00	148.19	West-Southwest 0.005
MW-3	9/10/2002	158.49	9.82	9.82	148.67	0.00	0.00	148.67	West-Southwest 0.005
CMW-4	9/10/2002	156.91	9.05	9.05	147.86	0.00	0.00	147.86	West-Southwest 0.005
CMW-5	9/10/2002	157.42	8.89	8.89	148.53	0.00	0.00	148.53	West-Southwest 0.005
MW-1	10/30/2002	158.49	11.45	11.45	147.04	0.00	0.00	147.04	West-Southwest 0.005
MW-2	10/30/2002	157.60	10.52	10.52	147.08	0.00	0.00	147.08	West-Southwest 0.005
MW-3	10/30/2002	158.49	10.95	10.95	147.54	0.00	0.00	147.54	West-Southwest 0.005
CMW-4	10/30/2002	156.91	10.17 ^C	10.17	146.74	0.00	0.00	146.74	West-Southwest 0.005
CMW-5	10/30/2002	157.42	10.04 ^C	10.04	147.38	0.00	0.00	147.38	West-Southwest 0.005
MW-1	12/31/2002	158.49	2.93	2.93	155.56	0.00	0.00	155.56	West-Southwest 0.005
MW-2	12/31/2002	157.60	2.51	2.51	155.09	0.00	0.00	155.09	West-Southwest 0.005
MW-3	12/31/2002	158.49	3.10	3.10	155.39	0.00	0.00	155.39	West-Southwest 0.005
CMW-4	12/31/2002	156.91	2.54	2.54	154.37	0.00	0.00	154.37	West-Southwest 0.005
CMW-5	12/31/2002	157.42	2.51	2.51	154.91	0.00	0.00	154.91	West-Southwest 0.005



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									505 SRA Northwest
MW-1	1/8/2003	158.49	4.19	4.19	154.30	0.00	0.00	154.30	Northwest
MW-2	1/8/2003	157.60	3.52	3.52	154.08	0.00	0.00	154.08	0.007
MW-3	1/8/2003	158.49	4.14	4.14	154.35	0.00	0.00	154.35	Northwest
CMW-1 ^C	1/8/2003	159.30	5.32	5.32	153.98	0.00	0.00	153.98	421 SRA
CMW-2 ^C	1/8/2003	158.83	5.04	5.04	153.79	0.00	0.00	153.79	Northwest
CMW-4 ^C	1/8/2003	156.91	3.44	3.44	153.47	0.00	0.00	153.47	0.019
CMW-5 ^C	1/8/2003	157.42	3.35	3.35	154.07	0.00	0.00	154.07	Northwest
CMW-6 ^C	1/8/2003	158.95	4.97	4.97	153.98	0.00	0.00	153.98	
CMW-7 ^C	1/8/2003	159.58	7.26	7.26	152.32	0.00	0.00	152.32	
MW-1	2/7/2003	158.49	4.88	4.88	153.61	0.00	0.00	153.61	Northwest
MW-2	2/7/2003	157.60	4.13	4.13	153.47	0.00	0.00	153.47	0.005
MW-3	2/7/2003	158.49	4.69	4.69	153.80	0.00	0.00	153.80	
CMW-4	2/7/2003	156.91	3.90	3.90	153.01	0.00	0.00	153.01	
CMW-5	2/7/2003	157.42	3.85	3.85	153.57	0.00	0.00	153.57	
MW-1	3/10/2003	158.49	5.45	5.45	153.04	0.00	0.00	153.04	Northwest
MW-2	3/10/2003	157.60	4.63	4.63	152.97	0.00	0.00	152.97	0.006
MW-3	3/10/2003	158.49	5.16	5.16	153.33	0.00	0.00	153.33	
CMW-4	3/10/2003	156.91	4.40	4.40	152.51	0.00	0.00	152.51	
CMW-5	3/10/2003	157.42	4.38	4.38	153.04	0.00	0.00	153.04	



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MW-1	4/9/2003	158.49	5.27	5.27	153.22	0.00	0.00	0.00	153.22	505 SRA Northwest
MW-2	4/9/2003	157.60	4.43	4.43	153.17	0.00	0.00	0.00	153.17	Northwest
MW-3	4/9/2003	158.49	4.99	4.99	153.50	0.00	0.00	0.00	153.50	0.010
CMW-1 ^C	4/9/2003	159.30	6.40	6.40	152.90	0.00	0.00	0.00	152.90	
CMW-2 ^C	4/9/2003	158.83	6.40	6.40	152.43	0.00	0.00	0.00	152.43	
CMW-4 ^C	4/9/2003	156.91	4.30	4.30	152.61	0.00	0.00	0.00	152.61	421 SRA Northwest
CMW-5 ^C	4/9/2003	157.42	4.35	4.35	153.07	0.00	0.00	0.00	153.07	0.026
CMW-6 ^C	4/9/2003	158.95	6.05	6.05	152.90	0.00	0.00	0.00	152.90	
CMW-7 ^C	4/9/2003	159.58	8.85	8.85	150.73	0.00	0.00	0.00	150.73	
MW-1	7/9/2003	158.49	7.45	7.45	151.04	0.00	0.00	0.00	151.04	505 SRA Northwest
MW-2	7/9/2003	157.60	6.51	6.51	151.09	0.00	0.00	0.00	151.09	0.009
MW-3	7/9/2003	158.49	7.15	7.15	151.34	0.00	0.00	0.00	151.34	
CMW-1 ^C	7/9/2003	159.30	7.36	7.36	151.94	0.00	0.00	0.00	151.94	
CMW-2 ^C	7/9/2003	158.83	8.48	8.48	150.35	0.00	0.00	0.00	150.35	
CMW-4 ^C	7/9/2003	156.91	6.47	6.43	150.48	0.00	0.00	0.00	150.48	421 SRA Northwest
CMW-5 ^C	7/9/2003	157.42	6.45	6.45	150.97	0.00	0.00	0.00	150.97	0.042
CMW-6 ^C	7/9/2003	158.95	8.02	8.02	150.93	0.00	0.00	0.00	150.93	
CMW-7 ^C	7/9/2003	159.58	10.77	10.77	148.81	0.00	0.00	0.00	148.81	



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MW-1	10/9/2003	158.49	10.73	10.73	147.76	0.00	0.00	0.00	147.76	505 SRA Northwest
MW-2	10/9/2003	157.60	9.92	9.92	147.68	0.00	0.00	0.00	147.68	0.008
MW-3	10/9/2003	158.49	10.31	10.31	148.18	0.00	0.00	0.00	148.18	0.023
CMW-1A ^c	10/9/2003	159.30	11.22	11.22	148.08	0.00	0.00	0.00	148.08	421 SRA Northwest
CMW-2A ^c	10/9/2003	158.83	11.66	11.66	147.17	0.00	0.00	0.00	147.17	0.023
CMW-4 ^c	10/9/2003	156.91	9.59	9.59	147.32	0.00	0.00	0.00	147.32	0.023
CMW-5 ^c	10/9/2003	157.42	9.60	9.60	147.82	0.00	0.00	0.00	147.82	0.023
CMW-6 ^c	10/9/2003	158.95	10.89	10.89	148.96	0.00	0.00	0.00	148.96	
CMW-7 ^c	10/9/2003	159.58	13.50	13.50	146.08	0.00	0.00	0.00	146.08	
MW-1	1/8/2004	158.49	3.75	3.75	154.74	0.00	0.00	0.00	154.74	505 SRA North-northwest
MW-2	1/8/2004	157.60	3.18	3.18	154.42	0.00	0.00	0.00	154.42	0.097
MW-3	1/8/2004	158.49	3.85	3.85	154.64	0.00	0.00	0.00	154.64	
CMW-1A ^c	1/8/2004	159.30	5.00	5.00	154.30	0.00	0.00	0.00	154.30	421 SRA
CMW-2A ^c	1/8/2004	158.83	5.30	5.30	153.53	0.00	0.00	0.00	153.53	
CMW-4 ^c	1/8/2004	156.91	6.35	6.35	150.56	0.00	0.00	0.00	150.56	West
CMW-5 ^c	1/8/2004	157.42	6.20	6.20	151.22	0.00	0.00	0.00	151.22	0.026
CMW-6 ^c	1/8/2004	158.95	4.50	4.50	154.45	0.00	0.00	0.00	154.45	
CMW-7 ^c	1/8/2004	159.58	7.36	7.36	152.22	0.00	0.00	0.00	152.22	



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									505 SRA	Northwest to Southwest 0.007 to 0.008
MW-1	3/30/2004	158.49	5.14	5.14	153.35	0.00	0.00	153.35	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-2	3/30/2004	157.60	4.33	4.33	153.27	0.00	0.00	153.27	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-3	3/30/2004	158.49	4.90	4.90	153.59	0.00	0.00	153.59	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-4	3/30/2004	156.49	4.35	4.35	152.14	0.00	0.00	152.14	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-5	3/30/2004	156.77	4.17	4.17	152.60	0.00	0.00	152.60	505 SRA	Northwest to Southwest 0.007 to 0.008
CMW-1A ^C	3/30/2004	159.30	NM	NM	NM	NM	NM	NM	505 SRA	Northwest to Southwest 0.007 to 0.008
CMW-2A ^C	3/30/2004	158.83	NM	NM	NM	NM	NM	NM	505 SRA	Northwest to Southwest 0.007 to 0.008
CMW-4	3/30/2004	156.91	4.10	4.10	152.81	0.00	0.00	152.81	505 SRA	Northwest to Southwest 0.007 to 0.008
CMW-5	3/30/2004	157.42	4.19	4.18	153.24	0.00	0.00	153.24	505 SRA	Northwest to Southwest 0.007 to 0.008
CMW-6 ^C	3/30/2004	158.95	NM	NM	NM	NM	NM	NM	505 SRA	Northwest to Southwest 0.007 to 0.008
CMW-7 ^C	3/30/2004	159.58	NM	NM	NM	NM	NM	NM	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-1	4/9/2004	158.49	5.85	5.85	152.64	0.00	0.00	152.64	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-2	4/9/2004	157.60	5.05	5.05	152.55	0.00	0.00	152.55	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-3	4/9/2004	158.49	5.52	5.52	152.97	0.00	0.00	152.97	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-4	4/9/2004	156.49	5.07	5.07	151.42	0.00	0.00	151.42	505 SRA	Northwest to Southwest 0.007 to 0.008
MW-5	4/9/2004	156.77	4.99	4.99	151.78	0.00	0.00	151.78	505 SRA	Northwest to Southwest 0.007 to 0.008
CMW-1A ^C	4/9/2004	159.30	6.62	6.62	152.68	0.00	0.00	152.68	421 SRA	Northwest to Southwest 0.007 to 0.008
CMW-2A ^C	4/9/2004	158.83	6.63	6.63	152.20	0.00	0.00	152.20	421 SRA	Northwest to Southwest 0.007 to 0.008
CMW-4 ^C	4/9/2004	156.91	5.06	5.06	151.85	0.00	0.00	151.85	421 SRA	Northwest to Southwest 0.007 to 0.008
CMW-5 ^C	4/9/2004	157.42	4.98	4.98	152.44	0.00	0.00	152.44	421 SRA	Northwest to Southwest 0.007 to 0.008
CMW-6 ^C	4/9/2004	158.95	6.42	6.42	152.53	0.00	0.00	152.53	421 SRA	Northwest to Southwest 0.007 to 0.008
CMW-7 ^C	4/9/2004	159.58	NM	NM	NM	NM	NM	NM	421 SRA	Northwest to Southwest 0.007 to 0.008



TABLE 1
Groundwater Elevation Data
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Measured	Top of Casing Elevation (feet, MSL)	Depth to Fluid/Air Interface (feet)	Depth to Product/Water Interface (feet)	Elevation of Groundwater Uncorrected (feet, MSL)	Floating Product Thickness (feet)	Correction for Free Product (Factor of 0.76) ^A (feet)	Hydraulic Potential ^B (feet, MSL)	Predominant Groundwater Flow Direction and Approximate Gradient (ft/ft)
MW-1	7/9/2004	158.49	9.37	8.51	149.12	0.00	0.00	149.12	505 SRA Northwest 0.011
MW-2	7/9/2004	157.60	9.06	9.06	149.43	0.00	0.00	149.09	
MW-3	7/9/2004	158.49	7.84	7.84	148.65	0.00	0.00	149.43	
MW-4	7/9/2004	156.49	8.55	8.55	148.22	0.00	0.00	148.65	
MW-5	7/9/2004	156.77	8.36	8.36	148.55	0.00	0.00	148.22	
CMW-4 ^D	7/9/2004	156.91	8.37	8.37	149.05	0.00	0.00	148.55	
CMW-5 ^D	7/9/2004	157.42	10.05	10.05	149.25	0.00	0.00	149.05	
CMW-1A ^E	6/24/2004	159.30	NM	NM	NM	NM	NM	NM	421 SRA Not Calculated
CMW-2A ^E	6/24/2004	158.83	7.75	7.75	149.16	0.00	0.00	149.16	
CMW-4 ^E	6/24/2004	156.91	7.85	7.85	149.57	0.00	0.00	149.57	
CMW-5 ^E	6/24/2004	157.42	9.33	9.33	149.62	0.00	0.00	149.62	
CMW-6 ^E	6/24/2004	158.95	11.91	11.91	147.67	0.00	0.00	147.67	
CMW-7 ^E	6/24/2004	159.58	NM	NM	NM	NM	NM	NM	
MW-1	9/16/2004	158.49	11.05	11.05	147.44	0.00	0.00	147.44	505 SRA Northwest to West 0.009
MW-2	9/16/2004	157.60	10.31	10.31	147.29	0.00	0.00	147.29	
MW-3	9/16/2004	158.49	10.63	10.63	147.86	0.00	0.00	147.86	
MW-4	9/16/2004	156.49	9.53	9.53	146.96	0.00	0.00	146.96	
MW-5	9/16/2004	156.77	10.13	10.13	146.64	0.00	0.00	146.64	
CMW-1A ^E	9/16/2004	159.30	11.67 ^F	11.67 ^F	147.63	0.00	0.00	147.63	421 SRA
CMW-2A ^E	9/16/2004	158.83	12.07 ^F	12.07 ^F	146.76	0.00	0.00	146.76	
CMW-4 ^E	9/16/2004	156.91	9.94 ^F	9.94 ^F	146.97	0.00	0.00	146.97	
CMW-5 ^E	9/16/2004	157.42	9.91 ^F	9.91 ^F	147.51	0.00	0.00	147.51	
CMW-6 ^E	9/16/2004	158.95	11.18 ^F	11.18 ^F	147.77	0.00	0.00	147.77	
CMW-7 ^E	9/16/2004	159.58	13.87 ^F	13.87 ^F	145.71	0.00	0.00	145.71	



TABLE 1
Groundwater Elevation Data
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Measured	Top of Casing Elevation (feet, MSL)	Depth to Fluid/Air Interface (feet)	Depth to Product/Water Interface (feet)	Elevation of Groundwater Uncorrected (feet, MSL)	Floating Product Thickness (feet)	Correction for Free Product (Factor of 0.76) ^A (feet)	Hydraulic Potential ^B (feet, MSL)	Predominant Groundwater Flow Direction and Approximate Gradient (ft/ft)
MW-1	1/13/2005	158.49	3.40	3.40	155.09	0.00	0.00	155.09	505 SRA Northwest 0.018
MW-2	1/13/2005	157.60	2.93	2.93	154.67	0.00	0.00	154.67	
MW-3	1/13/2005	158.49	3.67	3.67	154.82	0.00	0.00	154.82	
MW-4	1/13/2005	156.49	3.31	3.31	153.18	0.00	0.00	153.18	
MW-5	1/13/2005	156.77	3.40	3.40	153.37	0.00	0.00	153.37	
CMW-1A ^D	1/13/2005	159.30	4.91	4.91	154.39	0.00	0.00	154.39	421 SRA North
CMW-2A ^D	1/13/2005	158.83	4.92	4.92	153.91	0.00	0.00	153.91	
CMW-4 ^D	1/16/2005	156.91	2.98	2.98	153.93	0.00	0.00	153.93	
CMW-5 ^D	1/13/2005	157.42	3.20	3.20	154.22	0.00	0.00	154.22	to West
CMW-6 ^D	1/13/2005	158.95	4.28	4.28	154.67	0.00	0.00	154.67	0.013 to 0.018
CMW-7 ^D	1/13/2005	159.58	6.63	6.63	152.95	0.00	0.00	152.95	
MW-1	4/13/2005	158.49	4.39	4.39	154.10	0.00	0.00	154.10	505 SRA Northwest 0.014
MW-2	4/13/2005	157.60	3.76	3.76	153.84	0.00	0.00	153.84	
MW-3	4/13/2005	158.49	4.35	4.35	154.14	0.00	0.00	154.14	
MW-4	4/13/2005	156.49	4.12	4.12	152.37	0.00	0.00	152.37	to southwest 0.011
MW-5	4/13/2005	156.77	3.74	3.74	153.03	0.00	0.00	153.03	
CMW-1A ^E	4/13/2005	159.30	5.73	5.73	153.57	0.00	0.00	153.57	421 SRA Northwest
CMW-2A ^E	4/13/2005	158.83	5.21	5.21	153.62	0.00	0.00	153.62	
CMW-4 ^E	4/13/2005	156.91	3.67	3.67	153.24	0.00	0.00	153.24	
CMW-5 ^E	4/13/2005	157.42	3.74	3.74	153.68	0.00	0.00	153.68	
CMW-6 ^E	4/13/2005	158.95	5.36	5.36	153.59	0.00	0.00	153.59	0.020
CMW-7 ^E	4/13/2005	159.58	7.74	7.74	151.84	0.00	0.00	151.84	



TABLE 1
Groundwater Elevation Data
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Measured	Top of Casing Elevation (feet, MSL)	Depth to Fluid/Air Interface (feet)	Depth to Product/Water Interface (feet)	Elevation of Groundwater Uncorrected (feet, MSL)	Floating Product Thickness (feet)	Correction for Free Product (Factor of 0.76) ^A (feet)	Hydraulic Potential ^B (feet, MSL)	Predominant Groundwater Flow Direction and Approximate Gradient (ft/ft)
MW-1	7/13/2005	158.49	6.84	6.84	151.65	0.00	0.00	151.65	505 SRA Northwest 0.005 to 0.009
MW-2	7/13/2005	157.60	6.02	6.02	151.58	0.00	0.00	151.58	
MW-3	7/13/2005	158.49	6.54	6.54	151.95	0.00	0.00	151.95	
MW-4	7/13/2005	156.49	5.59	5.59	150.90	0.00	0.00	150.90	
MW-5	7/13/2005	156.77	6.06	6.06	150.71	0.00	0.00	150.71	
CMW-1A ^C	7/13/2005	159.30	7.79	7.79	151.51	0.00	0.00	151.51	
CMW-2A ^C	7/13/2005	158.83	7.67	7.67	151.16	0.00	0.00	151.16	421 SRA Northwest 0.022
CMW-4 ^C	7/13/2005	156.91	5.81	5.81	151.10	0.00	0.00	151.10	
CMW-5 ^C	7/13/2005	157.42	5.82	5.82	151.60	0.00	0.00	151.60	
CMW-6 ^C	7/13/2005	158.95	7.35	7.35	151.60	0.00	0.00	151.60	
CMW-7 ^C	7/13/2005	159.58	9.98	9.98	149.60	0.00	0.00	149.60	

Footnotes:

MSL = mean sea level

ft/ft = foot per foot

SRA = Santa Rosa Avenue

NM = not measured

^A = Factor is equal to the density of gasoline (0.76 grams per cubic centimeter) divided by the density of groundwater (0.998 grams per cubic centimeter), as measured at the site.

^B = Hydraulic potential is equal to the floating product thickness times the correction factor (0.76), plus the elevation of groundwater uncorrected.

^C = Data provided by Clearwater Group Environmental Services (Clearwater)

D = Data collected by Brunsing Associates, Inc.

E = Data provided electronically by Clearwater Group Environmental Services

F = Depth to groundwater for CMW wells corrected by subtracting 1.1 foot from measurement provided by Clearwater (see text in the BAI document "Groundwater Monitoring Report, September 2004", dated November 30, 2004)

Wells CMW-1 through CMW-7 are part of investigation at 421 Santa Rosa Avenue



TABLE 2
Groundwater Analytical Results
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Sampled	TPH as Gasoline (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	MTBE A (µg/l)	Depth to Water (feet)
MW-1	4/26/2002	< 0.05	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	5.94
MW-1	7/30/2002	< 0.05	< 0.50	< 0.50	1.57	< 0.50	< 1.0	9.33
MW-1	11/5/2002	< 0.05	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	11.45
MW-1	1/8/2003	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	4.19
MW-1	4/9/2003	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	5.27
MW-1	7/9/2003	< 0.050	< 0.50	< 0.50	2.30	< 0.50	< 1.0	7.45
MW-1	10/9/2003	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	10.73
MW-1 C	1/8/2004	< 0.050	< 0.30	< 0.30	0.73	< 0.50	< 0.50	3.75
MW-1	3/30/2004	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	5.14
MW-1	7/9/2004	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	9.37
MW-1	9/16/2004	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	11.05
MW-1	1/13/2005	< 0.05	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	3.40
MW-1	4/13/2005	< 0.050	< 0.30	< 0.30	< 0.50	< 0.50	< 0.50	4.39
MW-1	7/13/2005	< 0.05	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	6.84
MW-2	4/26/2002	33	186	72.5	1,100	6,680	< 50	5.15
MW-2	7/30/2002	36	134	< 50	1,170	5,010	< 100	8.47
MW-2	11/5/2002	21	71.7	18.6	1,280	3,460	< 20	10.53
MW-2	1/8/2003	20	159	21.3	538	4,240	< 20	3.52
MW-2	4/9/2003	14	125	19.8	607	2,590	< 20	4.43
MW-2	7/9/2003	19	130	26.3	921	3,130	< 20	6.51
MW-2	10/9/2003	23	64.6	15.2	1,220	3,900	< 20	9.92
MW-2 C	1/8/2004	< 0.050	170	32	400	4,500	< 50	3.18
MW-2	3/30/2004	11	87.3	15.3	380	2,970	< 20	4.33
MW-2	7/9/2004	13	65.7	11.5	1,140	2,950	< 20	8.51
MW-2	9/16/2004	8.1	43.7	< 10	705	1,650	< 20	10.31

Table 2. Groundwater Analytical Results



TABLE 2
Groundwater Analytical Results
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Sampled	TPH as Gasoline (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	MTBE ^A (µg/l)	Depth to Water (feet)
MW-2	1/13/2005	11	88.6	< 10	590	3,100	< 20	2.93
MW-2	4/13/2005	28	110	< 30	1,000	3,400	< 50	3.76
MW-2	7/13/2005	13	53.1	< 10	485	1,030	< 20	6.02
MW-3	4/26/2002	8.3	< 25	< 25	< 25	25.3	< 50	5.64
MW-3	7/30/2002	17	< 50	< 50	< 50	< 50	< 100	8.93
MW-3	11/5/2002	24	< 10	< 10	< 10	85.3	< 20	10.95
MW-3	1/8/2003	5.3	< 10	< 10	< 10	34.8	< 20	4.14
MW-3	7/9/2003	5.2	< 5.0	< 5.0	6.67	25.2	< 10	7.15
MW-3	10/9/2003	7.5	< 5.0	< 5.0	< 5.0	< 5.0	< 10	10.31
MW-3 C	1/8/2004	22	180	34	540	5,200	< 50	3.85
MW-3	3/30/2004	3.0	< 5.0	< 5.0	< 5.0	19.6	< 10	4.90
MW-3	7/9/2004	3.4	< 5.0	< 5.0	7.47	18.2	< 10	9.06
MW-3	9/16/2004	4.0	< 5.0	< 5.0	< 5.0	< 5.0	< 10	10.63
MW-3	1/13/2005	1.4	< 5.0	< 5.0	< 5.0	9.36	< 10	3.67
MW-3	4/13/2005	2.1	< 0.30	< 0.30	< 0.50	< 0.50	< 0.50	4.35
MW-3	7/13/2005	5.5	< 5.0	< 5.0	< 5.0	< 5.0	< 10	6.54
MW-4	3/30/2004	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	4.35
MW-4	7/9/2004	< 0.050	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0 D	7.84
MW-4	9/16/2004	< 0.050	< 0.50	< 0.50	< 0.50	0.77	< 1.0 E	9.53
MW-4	1/13/2005	< 0.05	< 0.50	< 0.50	< 0.50	< 0.50	< 1.0	3.31
MW-4	4/13/2005	< 0.050	< 0.30	< 0.30	< 0.50	< 0.50	< 0.50 H	4.12
MW-4	7/13/2005	< 0.05	< 0.50	< 0.530	< 0.50	< 0.50	< 1.0	5.59



TABLE 2
Groundwater Analytical Results
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Sampled	TPH as Gasoline (mg/l)	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	MTBE ^A (ug/l)	Depth to Water (feet)
MW-5	3/30/2004	25	1,170	< 50	2,660	4,080	< 100	4,17
MW-5	7/9/2004	53	3,650	< 50	6,100	4,140	< 100	8,55
MW-5	9/16/2004	28	2,520	< 50	4,710	2,990	< 100	10,13
MW-5	1/13/2005	9.7	755	< 50	1,350	524	< 100	3,40
MW-5	4/13/2005	46	1,700	< 30	4,600	1,100	< 50	3,74
MW-5	7/13/2005	36	1,400	< 10	2,720	547	< 20	6,06
CMW-4 ^B	4/26/2002	14	1,400	200	450	1,000	0.95	5,03
CMW-4 ^B	7/30/2002	16	2,800	180	390	1,100	0.1	8,26
CMW-4 ^B	11/5/2002	12	2,700	45	150	87	< 10	10,17
CMW-4 ^B	1/8/2003	3.9	570	47	120	240	< 2.5	3,44
CMW-4 ^B	4/9/2003	12	1,100	95	290	460	< 5.0	4,30
CMW-4 ^B	7/9/2003	14	1,600	93	290	480	< 10	6,47
CMW-4 ^B	10/9/2003	12	2,300	49	180	170	< 5.0	9,59
CMW-4 ^B	1/8/2004	4.4	570	39	120	210	< 3.0	6,35
CMW-4 ^B	4/9/2004	11	1,700	97	270	500	< 2.5	5,06
CMW-4 ^B	6/24/2004	8.5	1,500	52	160	220	< 5.0	7.75
CMW-4 ^B	9/16/2004	8.5	1,700	28	79	68	< 5.0 ^G	9,94 ^F
CMW-4 ^B	1/13/2005	2.9	330	17	60	88	1.4	2.98
CMW-4 ^B	4/13/2005	4.1	680	34	85	71	1.3	3.67
CMW-4 ^B	7/13/2005	11	960	38	220	140	< 1.5	5.81
CMW-5 ^B	4/26/2002	6.5	16	29	160	530	< 2.0	4.93
CMW-5 ^B	7/30/2002	4.3	38	10	120	250	< 1.0	8.13
CMW-5 ^B	11/5/2002	3.8	130	8.4	60	80	0.81	10.04



TABLE 2
Groundwater Analytical Results
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Sampled	TPH as Gasoline (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	MTBE A (µg/l)	Depth to Water (feet)
CMW-5 ^B	1/8/2003	6.0	9.8	24	130	410	< 1.0	3.35
CMW-5 ^B	4/9/2003	12	< 5.0	24	310	1,000	< 5.0	4.35
CMW-5 ^B	7/9/2003	3.2	31	5.9	35	50	< 0.50	6.45
CMW-5 ^B	10/9/2003	3.1	40	4.6	22	36	0.90	9.60
CMW-5 ^B	1/8/2004	4.6	4	12.0	100	270	0.51	6.20
CMW-5 ^B	4/9/2004	3.7	8.2	5.3	22	34	0.53	4.98
CMW-5 ^B	6/24/2004	3.9	14.0	4.2	44	85	0.86	7.85
CMW-5 ^B	9/16/2004	2.3	19.0	2.4	8	12	0.97 ^G	9.91 ^F
CMW-5 ^B	1/13/2005	2.4	0.5	2.8	32	68	< 0.50	3.20
CMW-5 ^B	4/13/2005	3.5	0.95	2.0	51	100	< 0.50	3.74
CMW-5 ^B	7/13/2005	7.4	2.0	5.1	140	220	< 0.50	5.82

mg/l = milligrams per liter

µg/l = micrograms per

Less than symbol (<) indicates not detected at given laboratory reporting limit

A = Sample analyzed for petroleum oxygenates and lead scavengers using EPA Test Method 8260B with the exception of samples collected from wells CMW-4 and CMW-5. All analytes detected are listed.

B = Data for wells CMW-4 and CMW-5 provided by Clearwater Group Environmental Services.

C = Reported analytical results for groundwater samples collected on 1/8/2004 from wells MW-1, MW-2, and MW-3 may not be accurate due to possible mislabeling and/or sample carryover

D = Di-isopropyl ether (DIPE) reported at 1.50 µg/l

E = Di-isopropyl ether (DIPE) reported at 2.23 µg/l

F = Depth to groundwater for CMW wells corrected by 1.1 foot

(see text in the BAI document "Groundwater Monitoring Report, September 2004", dated November 12, 2004)

G = Clearwater September 2004 groundwater samples analyzed for petroleum oxygenates and lead scavengers using EPA Test Method 8260

H = Di-isopropyl ether (DIPE) reported at 2.4 µg/l

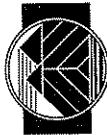


TABLE 3
Well Construction Details
505 Santa Rosa Avenue
Santa Rosa, California

Well Number	Date Installed	Installed by	Borehole Diameter (inches)	Total Borehole Depth (feet, bgs)	Screened Interval (feet, bgs)	Total Well Depth (feet, bgs)	Casing Diameter (inches)	Screen Slot Size (inches)	PVC Casing Elevation (feet, MSL)	Existing or Abandoned
MW-1	4/15/2002	BAI	8	20	5 to 20	20	2	0.010	158.49	Existing
MW-2	4/15/2002	BAI	8	20	5 to 20	20	2	0.010	157.60	Existing
MW-3	4/15/2002	BAI	8	20	5 to 20	20	2	0.010	158.49	Existing
MW-4	3/16/2004	BAI	8	15	5 to 15	15	2	0.010	156.49	Existing
MW-5	3/16/2004	BAI	8	15	5 to 15	15	2	0.010	156.77	Existing

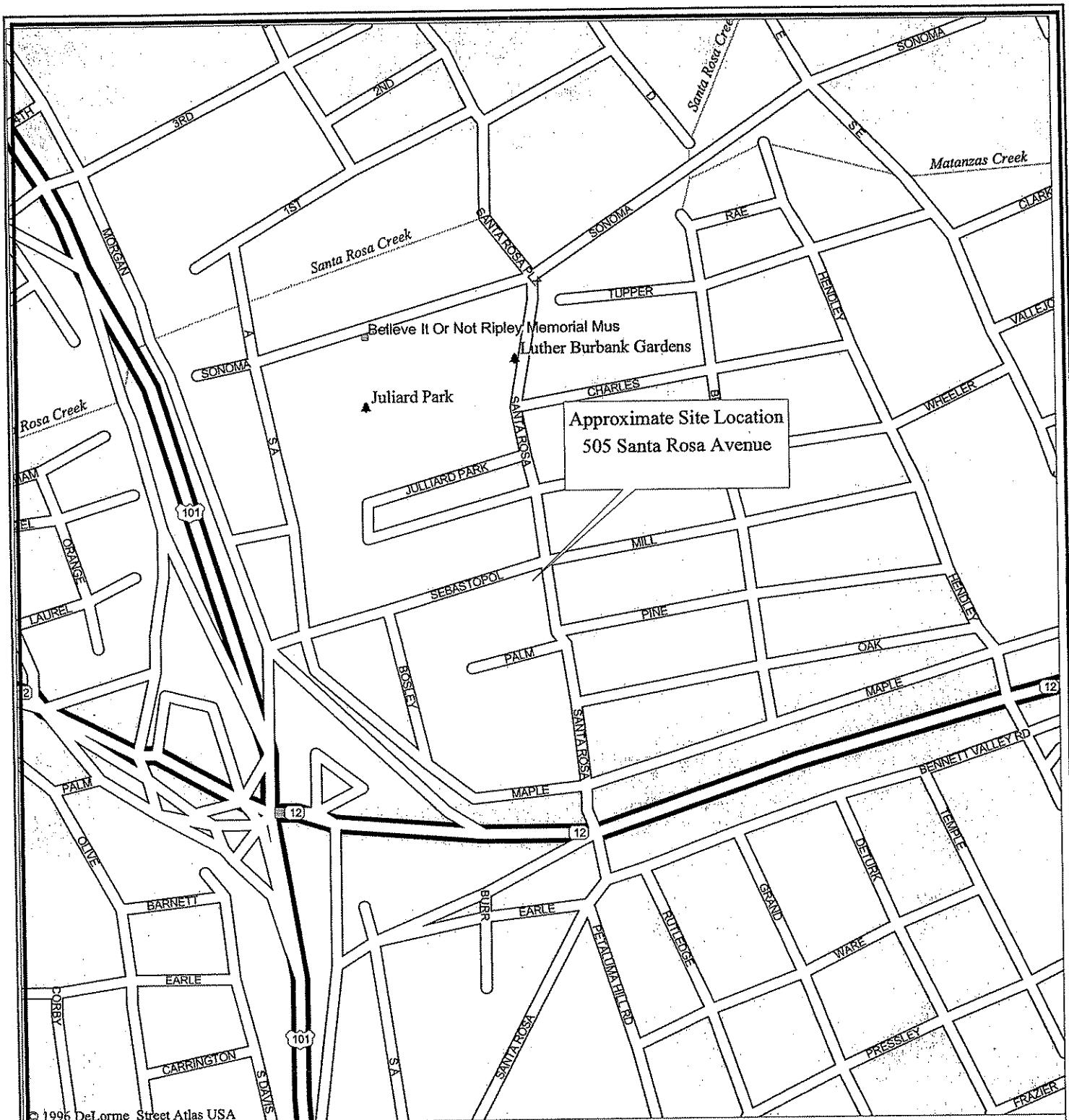
BAI = Brunsing Associates, Inc.

MSL = mean sea level

bgs = below ground surface

PLATES





Mag 16.00

Fri Feb 20 13:34 2004

Scale 1:6,250 (at center)

500 Feet

200 Meters

Secondary SR/Road/Hwy Ramp

Interstate/Limited Access

Point of Interest



PROJECT NO.: 691

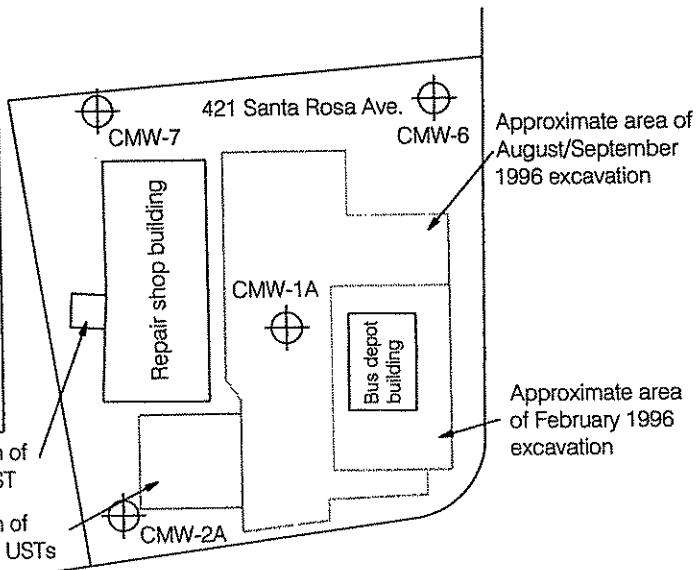
DRAWN BY:	SMS	2/20/04
CHECKED BY:		
APPROVED BY:	OMP	7/6/04
REVISED:		

Brunsing Associates, Inc.
P.O. Box 588
Windsor, California 95492

PLATE 1
Site Vicinity Map
505 Santa Rosa Avenue
Santa Rosa, California

LEGEND

- MW-1 Monitoring well location and number
- B-2 Soil boring location and number
- CMW-4 Clearwater monitoring well location and number
- Approximate excavation limits for 421 Santa Rosa Avenue site



Sebastopol Avenue

MW-4

CMW-4

MW-5

B-4

CMW-5

MW-2

MW-1

Office

Shop

Parking Lot

Possible former pump island
Former USTs locations and excavation limits

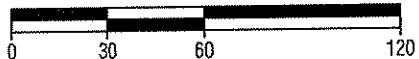
B-1

MW-3
B-2

Santa Rosa Avenue



APPROXIMATE SCALE (FEET)



Reference:
Ray Carlson & Associates, May 10, 2002

Data for 421 Santa Rosa Avenue from GPI Environmental Management report dated November 11, 1996



Brunsing Associates, Inc.
5803 Skylane Blvd., Suite A
Windsor, California 95492
Tel: (707) 838-3027

Job No.: 691

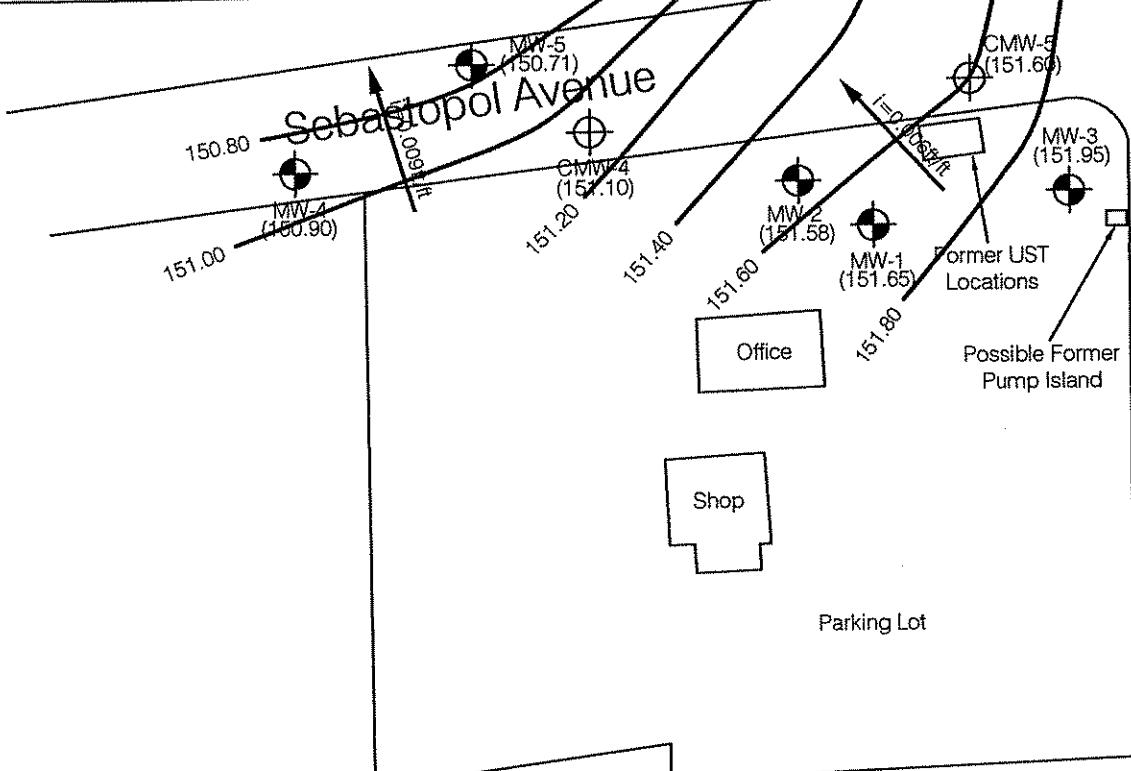
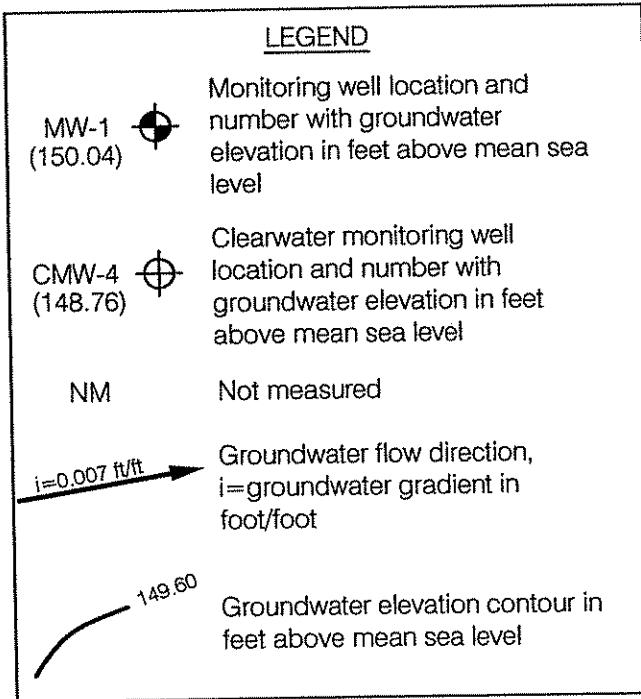
Appr.: *DMR*

Date: 3/8/05

SITE MAP
505 Santa Rosa Avenue
Santa Rosa, California

PLATE

2



Santa Rosa Avenue

APPROXIMATE SCALE (FEET)



Reference:

Clearwater well locations and data from
Clearwater Group Environmental Services.
Ray Carlson & Associates, May 10, 2002



Brunsing Associates, Inc.
5468 Skylane Blvd., Suite 201
Santa Rosa, California 95403
Tel: (707) 838-3027

Job No.: 691
Appr.: *AMC*
Date: 08/12/05

GROUNDWATER FLOW MAP
July 13, 2005

505 Santa Rosa Avenue
Santa Rosa, California

PLATE
3

APPENDIX A

Groundwater Sampling Protocol



Groundwater Sampling Protocol

Monitoring Wells

Prior to purging a monitoring well, groundwater levels are measured with a Solinst electric depth measurement device, or an interface probe, in all wells that are to be measured. At sites where petroleum hydrocarbons are possible contaminants, the well is checked for floating product using a clear bailer, a steel tape with water/oil paste, or an interface probe, during the initial sampling round. If floating product is measured during the initial sampling round or noted during subsequent sampling rounds, floating product measurements are continued.

After the water level and floating product measurements are complete, the monitoring well is purged until a minimum of three casing volumes of water are removed, water is relatively clear of sediment, and pH, conductivity, and temperature measurements of the water become relatively stable. If the well is purged dry, groundwater samples are collected after the water level in the well recovers to at least 80 percent of the original water column measured in the well prior to sampling, or following a maximum recovery period of two hours. The well is purged using a factory-sealed, disposable, polyethylene bailer, a four-inch diameter submersible Grundfos pump, a two-inch diameter ES-40 purge pump, or a peristaltic pump. The purge water is stored on-site in clean, 55-gallon drums.

A groundwater sample is collected from each monitoring well following re-equilibration of the well after purging. The groundwater sample is collected using a factory-sealed disposable, polyethylene bailer with a sampling port, or a factory-sealed Teflon bailer. A factory provided attachment designed for use with volatile organic compounds (VOCs) is attached to the polyethylene bailer sampling port when collecting samples to be analyzed for VOCs. The groundwater sample is transferred from the bailer into sample container(s) that are obtained directly from the analytical laboratory.

The sample container(s) is labeled with a self-adhesive tag. The following information is included on the tag:

- Project number
- Sample number
- Date and time sample is collected
- Initials of sample collector(s).



Individual log sheets are maintained throughout the sampling operations. The following information is recorded:

- Sample number
- Date and time well sampled and purged
- Sampling location
- Types of sampling equipment used
- Name of sampler(s)
- Volume of water purged.

Following collection of the groundwater sample, the sample is immediately stored on blue ice in an appropriate container. A chain-of-custody form is completed with the following information:

- Date the sample was collected
- Sample number and the number of containers
- Analyses required
- Remarks including preservatives added and any special conditions.

The original copy of the chain-of-custody form accompanies the sample containers to a California-certified laboratory. A copy is retained by BAI and placed in company files.

Sampling equipment including thermometers, pH electrodes, and conductivity probes are cleaned both before and after their use at the site. The following cleaning procedures are used:

- Wash with a potable water and detergent solution or other solutions deemed appropriate
- Rinse with potable water
- Double-rinse with organic-free or deionized water
- Package and seal equipment in plastic bags or other appropriate containers to prevent contact with solvents, dust, or other contaminants.

In addition, the pumps are cleaned by pumping a potable water and detergent solution and deionized water through the system. Cleaning solutions are contained on-site in clean 55-gallon drums.

Domestic and Irrigation Wells

Groundwater samples collected from domestic or irrigation wells are collected from the spigot that is the closest to the well. Prior to collecting the sample, the spigot is allowed to flow for at least 5 minutes to purge the well. The sample is then collected directly into laboratory-supplied containers, sealed, labeled, and stored on blue ice in an appropriate container, as described above. A chain-of-custody form is completed and submitted with the samples to the analytical laboratory.



APPENDIX B

Groundwater Sampling Field Forms and Logs



FILE COPYUST
Fund Site: Yes
 No**FIELD REPORT**PAGE 1 OF 7

JOB NO: 691 PROJECT: Groth Motors - 505 Santa Rosa Ave, Santa Rosa, CA

INITIAL: CDS SUBJECT: GROUNDWATER SAMPLING

DATE: 7-13-05 PROJECT PHASE NUMBER: 04

VEHICLE USED: Ford F-150

Total Time: 8.00End. Mileage: 762Beg. Mileage: 172445TOTAL MILEAGE: 17

TIME DESCRIPTION OF WORK AND CONVERSATION RECORD:

0616 LOAD EQUIPMENT AND SUPPLIES

0651 TO SITE

0714 ARRIVE AT SITE. SET-UP FOR GROUNDWATER SAMPLING.

MEASURED TWO ROUNDS OF DISTANCE TO WATER OR VNTL WELLS

EQUILIBRATED AT WELLS MW-1, MW-2, MW-3, MW-4, MW-5,

CMW-4 AND CMW-5.

PERFORMED SAMPLING AT WELLS MW-1, MW-2, MW-3, MW-4

AND MW-5.

STORED PURGEWATER IN DRUM LOCATED NORTHWEST OF THE SHOP BUILDING.

CLOSED ALL WELLS AND MONUMENTS.

DECON SAMPLING EQUIPMENT.

LOAD EQUIPMENT AND SUPPLIES.

COMPLETED FIELD NOTES AND LOGGED SAMPLES ON CHAIN OF CUSTODY.

1325 LEAVE SITE

1344 ARRIVED AT OFFICE. SUBMITTED SAMPLES FOR ANALYSIS.

UNLOAD EQUIPMENT AND SUPPLIES.

1426 FINISHED WITH WORK.

DRUM COUNT:

Water = 3

Devlpmt Water =

Soil =

Decon Water =



WATER LEVELS

SHEET 2 OF 7

PROJECT: Groth Motors - 505 Santa Rosa Avenue, Santa Rosa, CA

PROJECT NUMBER: 691

INSTRUMENT TYPE: ET (wlp)

INITIALS: CDS

DATE: 7-13-05

**BRUNSING ASSOCIATES, INC.
ENVIRONMENTAL DIVISION**

WELL SAMPLING

SHEET 3 OF 7

PROJECT: Groth

PROJECT NUMBER: 691.01

WELL# MW-1 PRECIP. IN LAST 5 DAYS: — WIND ✓ DATE: 7-13-05

STARTING TIME: 0818 FINISHING TIME: 0903 INITIALS: CDS

CALCULATION OF PURGE VOLUME

2" WELL DEPTH: 20.00 - D.T.W. 6.84 = H2O COLUMN: 13.16 CONV.= 6.58

4" WELL DEPTH: - D.T.W. = H2O COLUMN: CONV.=

THEREFORE TOTAL PURGE GALLONS EQUALS 2" WELL 4" WELL

FIELD MEASUREMENTS

<u>TIME</u>	<u>GALLONS REMOVED</u>	<u>pH</u>	<u>CONDUCTIVITY</u>	<u>TEMP.</u>	<u>OBSERVATIONS</u>
0833	1	6.77	672	21.6	CLOUDY BROWN, NO ODOR, SANDY
0837	4	6.82	609	21.2	TURBID Brown, NO ODOR, SANDY
0841	7	6.75	596	20.9	TURBID Brown, NO ODOR, SANDY

SAMPLING: SAMPLE ANALYSIS: TPH-GAS EPA-8260

SAMPLE TIME: **0852** DID WELL GO DRY? **NO**

WATER LEVELS:

NOTES:

**BRUNSWICK ASSOCIATES, INC.
ENVIRONMENTAL DIVISION**

WELL SAMPLING

SHEET 4 OF 7

PROJECT: Groth

PROJECT NUMBER: 691.01

WELL# MW-2 PRECIP. IN LAST 5 DAYS: - WIND ✓

DATE: 7-13-05

STARTING TIME: 0904 FINISHING TIME: 0946

INITIALS: < D S >

CALCULATION OF PURGE VOLUME

2" WELL DEPTH: 20.00 - D.T.W. 6.02 = H2O COLUMN: 13.98 CONV.= 6.99

4" WELL DEPTH: - D.T.W. = H2O COLUMN: CONV.:

THEREFORE TOTAL PURGE GALLONS EQUALS 2" WELL 7 4" WELL

GALLONS

FIELD MEASUREMENTS

<u>TIME</u>	<u>GALLONS REMOVED</u>	<u>pH</u>	<u>CONDUCTIVITY</u>	<u>TEMP.</u>	<u>OBSERVATIONS</u>
0915	1	6.78	580	22.8	TURBID GREEN-BROWN, PHC ODORE, SANDY
0919	4	6.59	579	21.8	TURBID GREEN-BROWN, PHC ODORE, SANDY
0924	7	6.60	577	21.3	TURBID GREEN-BROWN, PHC ODORE, SANDY

SAMPLING:

SAMPLE ANALYSIS:

TPH-GAS

EPA-8260

SAMPLE TIME:

DID WELL GO DRY?

NO

WATER LEVELS

NOTES:

TIME | P.T.W.

0940 | 10.47

• [View all posts by **John**](#) • [View all posts in **Uncategorized**](#) • [View all posts in **Uncategorised**](#)

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BRUNSWICK ASSOCIATES, INC.
ENVIRONMENTAL DIVISION

WELL SAMPLING

SHEET 5 OF 7

PROJECT: Groth

PROJECT NUMBER: 691.01

WELL# MW-3 PRECIP. IN LAST 5 DAYS: — WIND ✓

DATE: 7-13-05

STARTING TIME: 0947 FINISHING TIME: 1033

INITIALS: CDS

CALCULATION OF PURGE VOLUME

2" WELL DEPTH: - D.T.W. = H2O COLUMN: CONV.= GALLONS

4" WELL DEPTH: - D.T.W. = H2O COLUMN: CONV.=

THEREFORE TOTAL PURGE GALLONS EQUALS 2" WELL 4" WELL

FIELD MEASUREMENTS

TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP.	OBSERVATIONS
0956	1	6.84	443	21.0	TURBID GREEN-BROWN, PHC ODORE, SANDY
1002	4	6.71	427	20.8	TURBID GREEN-BROWN, PHC ODORE, SANDY
1007	7	6.67	421	20.7	TURBID GREEN-BROWN, PHC ODORE, SANDY

SAMPLING:	SAMPLE ANALYSIS:	TPH-GAS	EPA-8260		
	SAMPLE TIME:	1018	DID WELL GO DRY?	No	

WATER LEVELS:		NOTES:
TIME	D.T.W.	
1022	8.29	

WELL SAMPLING

SHEET 6 OF 7

PROJECT: Groth Motors - 505 Santa Rosa Avenue, Santa Rosa, CA

PROJECT NUMBER: 691

WELL # MW-4 PRECIP. IN LAST 5 DAYS: — WIND ✓

DATE: 7-13-03

STARTING TIME: 1034 FINISHING TIME: 1116

INITIALS: CDS

CALCULATION OF PURGE VOLUME

2" WELL DEPTH: 15.00 - D.T.W. 5.5' = H2O COLUMN: 9.41 X 0.5 = 4.71

G
A
L
L
O
N
S

4" WELL DEPTH: [] - D.T.W. [] = H2O COLUMN: [] X 2.0 = []

THEREFORE TOTAL PURGE GALLONS EQUALS

5

FIELD MEASUREMENTS

TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP.	OBSERVATIONS
1040	1	7.23	589	22.9	Cloudy Green-Brown, Septic Odor, Sandy
1044	3	6.96	578	22.3	Turbid Grey-Brown, Septic Odor, Sandy
1047	5	6.82	551	21.9	Turbid Grey-Brown, Septic Odor, Sandy

SAMPLING: SAMPLE ANALYSIS: TPH-Gas, 8260B (BTEX, pet oxy & Pb scav)

SAMPLE TIME: 1103 DID WELL GO DRY? No

WATER LEVELS:		NOTES:
TIME	D.T.W.	
1108	10.93	

WELL SAMPLING

SHEET 7 OF 7

PROJECT: Groth Motors - 505 Santa Rosa Avenue, Santa Rosa, CA

PROJECT NUMBER: 691

WELL # MW-5 PRECIP. IN LAST 5 DAYS: — WIND ✓

DATE: 7-13-05

STARTING TIME: 1144 FINISHING TIME: 1225

INITIALS: LDS

CALCULATION OF PURGE VOLUME

2" WELL DEPTH: 15.00 - D.T.W. 6.06 = H₂O COLUMN: 8.94 X 0.5 = 4.47

GALLONS

4" WELL DEPTH: [] - D.T.W. [] = H₂O COLUMN: [] X 2.0 = []

THEREFORE TOTAL PURGE GALLONS EQUALS

[] 4 []

FIELD MEASUREMENTS

TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP.	OBSERVATIONS
1153	1	7.27	636	24.3	TURBID GREEN-Brown, NO ODORE, SANDY
1157	2.5	6.93	596	23.0	TURBID GREEN-Brown, NO ODORE, SANDY
1201	4	6.65	573	22.4	TURBID GREEN-Brown, NO ODORE, SANDY

SAMPLING: SAMPLE ANALYSIS: TPH-Gas, 8260B (BTEX, pet oxy & Pb scav) []

SAMPLE TIME: 1216 DID WELL GO DRY? No

WATER LEVELS:		NOTES:
TIME	D.T.W.	

1220	1035	

APPENDIX C

Analytical Laboratory Report



Laboratory Report Project Overview

EDF 1.2a

Laboratory:
Bace Analytical, Windsor, CA
Lab Report Number:
4599
Project Name:
505 SANTA ROSA AVE
Work Order Number:
691.070
Control Sheet Number:
NA

Laboratory:
Bace Analytical, Windsor, CA
Lab Report Number:
4599
Project Name:
505 SANTA ROSA AVE
Work Order Number:
691.070
Control Sheet Number:
NA

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anicode	Exmcode	Logdate	Extdate	Anadate	Lablotid	Run Sub
4599	MW-1	4599-1	W	CS	8260FAB	SW5030B	07/13/200	07/18/200	20050718	8	
4599	MW-1	4599-1	W	CS	8260TPH	SW5030B	5	5	5		
4599	MW-2	4599-2	W	CS	8260FAB	SW5030B	07/13/200	07/18/200	20050718	8	
4599	MW-2	4599-2	W	CS	8260TPH	SW5030B	5	5	5		
4599	MW-3	4599-3	W	CS	8260FAB	SW5030B	07/13/200	07/18/200	20050718	20	
4599	MW-3	4599-3	W	CS	8260TPH	SW5030B	5	5	5		
4599	MW-4	4599-4	W	CS	8260FAB	SW5030B	07/13/200	07/18/200	20050718	12	
4599	MW-4	4599-4	W	CS	8260TPH	SW5030B	5	5	5		
4599	MW-5	4599-5	W	CS	8260FAB	SW5030B	07/13/200	07/18/200	20050718	13	
4599	MW-5	4599-5	W	CS	8260TPH	SW5030B	5	5	5		
4599	MW-5	4599-5	W	CS	8260FAB	SW5030B	07/13/200	07/18/200	20050718	16	
4599	MW-5	4599-5	W	CS	8260TPH	SW5030B	5	5	5		
4599MB		4599MB	W	LB1	8260FAB	SW5030B	/ /	07/18/200	20050718	1	
4599MB		4599MB	W	LB1	8260TPH	SW5030B	/ /	5	5		
4599MS		4599MS	W	MS1	8260FAB	SW5030B	/ /	07/18/200	20050718	1	
4599MS		4599MS	W	MS1	8260TPH	SW5030B	/ /	07/18/200	20050718	9	
4599SD		4599SD	W	SD1	8260FAB	SW5030B	/ /	07/18/200	20050718	10	
4599SD		4599SD	W	SD1	8260TPH	SW5030B	/ /	07/18/200	20050718	15	

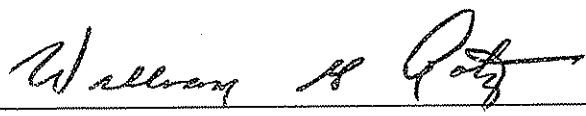
Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 1

Project Name:	505 SANTA ROSA AVE	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	691.070	Method:	8260FAB			
		Prep Meth:	SW5030B			
Field ID:	MW-1	Lab Samp ID:	4599-1			
Descr/Location:	MW-1	Rec'd Date:	07/13/2005			
Sample Date:	07/13/2005	Prep Date:	07/18/2005			
Sample Time:	0852	Analysis Date:	07/18/2005			
Matrix:	Water	QC Batch:	20050718			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	0.38	1.0	PQL	ND	UG/L	1
Ethyl tert-butyl ether (ETBE)	0.30	1.0	PQL	ND	UG/L	1
tert-Amyl methyl ether (TAME)	0.26	1.0	PQL	ND	UG/L	1
Di-isopropyl ether (DIPE)	0.37	1.0	PQL	ND	UG/L	1
tert-Butyl alcohol (TBA)	2.4	10.	PQL	ND	UG/L	1
1,2-Dichloroethane	0.30	0.50	PQL	ND	UG/L	1
1,2-Dibromoethane	0.30	0.50	PQL	ND	UG/L	1
Benzene	0.27	0.50	PQL	ND	UG/L	1
Toluene	0.25	0.50	PQL	ND	UG/L	1
Ethylbenzene	0.25	0.50	PQL	ND	UG/L	1
Xylenes	0.25	0.50	PQL	ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	86-118	SLSA		103%		1
Toluene-d8	88-110	SLSA		100%		1
Dibromofluoromethane	86-115	SLSA		99%		1

Approved by:



Date: 7/26/05

Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 2

Project Name:	505 SANTA ROSA AVE	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	691.070	Method:	8260FAB			
		Prep Meth:	SW5030B			
Field ID:	MW-2	Lab Samp ID:	4599-2			
Descr/Location:	MW-2	Rec'd Date:	07/13/2005			
Sample Date:	07/13/2005	Prep Date:	07/18/2005			
Sample Time:	0936	Analysis Date:	07/18/2005			
Matrix:	Water	QC Batch:	20050718			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	7.6	20.	PQL	ND	UG/L	20
Ethyl tert-butyl ether (ETBE)	6.0	20.	PQL	ND	UG/L	20
tert-Amyl methyl ether (TAME)	5.2	20.	PQL	ND	UG/L	20
Di-isopropyl ether (DIPE)	7.4	20.	PQL	ND	UG/L	20
tert-Butyl alcohol (TBA)	48.	200.	PQL	ND	UG/L	20
1,2-Dichloroethane	6.0	10.	PQL	ND	UG/L	20
1,2-Dibromoethane	6.0	10.	PQL	ND	UG/L	20
Benzene	5.4	10.	PQL	53.1	UG/L	20
Toluene	5.0	10.	PQL	ND	UG/L	20
Ethylbenzene	5.0	10.	PQL	485.	UG/L	20
Xylenes	5.0	10.	PQL	1030.	UG/L	20
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118	SLSA	101%		1
Toluene-d8		88-110	SLSA	100%		1
Dibromofluoromethane		86-115	SLSA	99%		1

Approved by:

Date: 7/26/05

Lab Report No.: 4599 Date: 07/26/2005

Page: 3

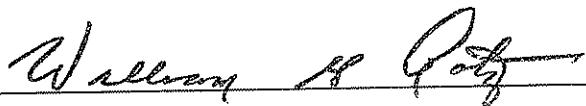
Project Name:	505 SANTA ROSA AVE	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	691.070	Method:	8260FAB			
		Prep Meth:	SW5030B			
Field ID:	MW-3	Lab Samp ID:	4599-3			
Descr/Location:	MW-3	Rec'd Date:	07/13/2005			
Sample Date:	07/13/2005	Prep Date:	07/18/2005			
Sample Time:	1018	Analysis Date:	07/18/2005			
Matrix:	Water	QC Batch:	20050718			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	3.8	10.	PQL	ND	UG/L	10
Ethyl tert-butyl ether (ETBE)	3.0	10.	PQL	ND	UG/L	10
tert-Amyl methyl ether (TAME)	2.6	10.	PQL	ND	UG/L	10
Di-isopropyl ether (DIPE)	3.7	10.	PQL	ND	UG/L	10
tert-Butyl alcohol (TBA)	24.	100.	PQL	ND	UG/L	10
1,2-Dichloroethane	3.0	5.0	PQL	ND	UG/L	10
1,2-Dibromoethane	3.0	5.0	PQL	ND	UG/L	10
Benzene	2.7	5.0	PQL	ND	UG/L	10
Toluene	2.5	5.0	PQL	ND	UG/L	10
Ethylbenzene	2.5	5.0	PQL	ND	UG/L	10
Xylenes	2.5	5.0	PQL	ND	UG/L	10
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118	SLSA	103%		1
Toluene-d8		88-110	SLSA	99%		1
Dibromofluoromethane		86-115	SLSA	99%		1

Approved by:

*William H. Ratz*Date: 7/26/05

Project Name:	505 SANTA ROSA AVE	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Project No:	691.070	Method:	8260FAB			
		Prep Meth:	SW5030B			
Field ID:	MW-4	Lab Samp ID:	4599-4			
Descr/Location:	MW-4	Rec'd Date:	07/13/2005			
Sample Date:	07/13/2005	Prep Date:	07/18/2005			
Sample Time:	1103	Analysis Date:	07/18/2005			
Matrix:	Water	QC Batch:	20050718			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	0.38	1.0	PQL	ND	UG/L	1
Ethyl tert-butyl ether (ETBE)	0.30	1.0	PQL	ND	UG/L	1
tert-Amyl methyl ether (TAME)	0.26	1.0	PQL	ND	UG/L	1
Di-isopropyl ether (DIPE)	0.37	1.0	PQL	ND	UG/L	1
tert-Butyl alcohol (TBA)	2.4	10.	PQL	ND	UG/L	1
1,2-Dichloroethane	0.30	0.50	PQL	ND	UG/L	1
1,2-Dibromoethane	0.30	0.50	PQL	ND	UG/L	1
Benzene	0.27	0.50	PQL	ND	UG/L	1
Toluene	0.25	0.50	PQL	ND	UG/L	1
Ethylbenzene	0.25	0.50	PQL	ND	UG/L	1
Xylenes	0.25	0.50	PQL	ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118	SLSA	103%		1
Toluene-d8		88-110	SLSA	101%		1
Dibromofluoromethane		86-115	SLSA	98%		1

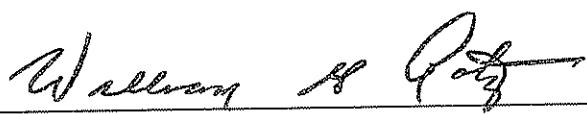
Approved by:



Date: 7/26/05

Project Name:	505 SANTA ROSA AVE	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX				
Project No:	691.070	Method:	8260FAB				
		Prep Meth:	SW5030B				
Field ID:	MW-5	Lab Samp ID:	4599-5				
Descr/Location:	MW-5	Rec'd Date:	07/13/2005				
Sample Date:	07/13/2005	Prep Date:	07/18/2005				
Sample Time:	1216	Analysis Date:	07/18/2005				
Matrix:	Water	QC Batch:	20050718				
Basis:	Not Filtered	Notes:					
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil	
Methyl-tert-butyl ether (MTBE)	7.6	20.	PQL	ND	UG/L	20	
Ethyl tert-butyl ether (ETBE)	6.0	20.	PQL	ND	UG/L	20	
tert-Amyl methyl ether (TAME)	5.2	20.	PQL	ND	UG/L	20	
Di-isopropyl ether (DIPE)	7.4	20.	PQL	ND	UG/L	20	
tert-Butyl alcohol (TBA)	48.	200.	PQL	ND	UG/L	20	
1,2-Dichloroethane	6.0	10.	PQL	ND	UG/L	20	
1,2-Dibromoethane	6.0	10.	PQL	ND	UG/L	20	
Benzene	5.4	10.	PQL	1400.	UG/L	20	
Toluene	5.0	10.	PQL	DX	ND	UG/L	20
Ethylbenzene	5.0	10.	PQL	2720.	UG/L	20	
Xylenes	5.0	10.	PQL	547.	UG/L	20	
SURROGATE AND INTERNAL STANDARD RECOVERIES:							
4-Bromofluorobenzene		86-118	SLSA	102%		1	
Toluene-d8		88-110	SLSA	101%		1	
Dibromofluoromethane		86-115	SLSA	98%		1	
DX: Value < lowest standard (MQL), but > than MDL							

Approved by:



Date: 7/26/05

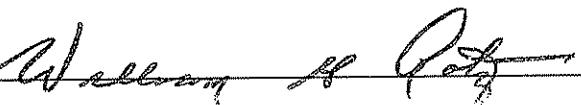
Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 6

Project Name:	505 SANTA ROSA AVE	Analysis:	Total Petroleum Hydrocarbons (TPH) by GC/MS				
Project No:	691.070	Method:	8260TPH				
		Prep Meth:	SW5030B				
Field ID:	MW-1	Lab Samp ID:	4599-1				
Descr/Location:	MW-1	Rec'd Date:	07/13/2005				
Sample Date:	07/13/2005	Prep Date:	07/18/2005				
Sample Time:	0852	Analysis Date:	07/18/2005				
Matrix:	Water	QC Batch:	20050718				
Basis:	Not Filtered	Notes:					
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil	
Gasoline Range Organics (C5-C12)	0.04	0.05	PQL	ND	MG/L	1	
SURROGATE AND INTERNAL STANDARD RECOVERIES:							
4-Bromofluorobenzene	86-115	SLSA		103%			1

Approved by:



Date: 7/26/05

Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 7

Project Name:	505 SANTA ROSA AVE	Analysis:	Total Petroleum Hydrocarbons (TPH) by GC/MS		
Project No:	691.070	Method:	8260TPH		
		Prep Meth:	SW5030B		
Field ID:	MW-2	Lab Samp ID:	4599-2		
Descr/Location:	MW-2	Rec'd Date:	07/13/2005		
Sample Date:	07/13/2005	Prep Date:	07/18/2005		
Sample Time:	0936	Analysis Date:	07/18/2005		
Matrix:	Water	QC Batch:	20050718		
Basis:	Not Filtered	Notes:			
Analyte	Det Limit	Rep Limit	Note	Result	Units
Gasoline Range Organics (C5-C12)	0.80	1.0	PQL	13.	MG/L
SURROGATE AND INTERNAL STANDARD RECOVERIES:				103%	1
4-Bromofluorobenzene	86-115	SLSA			

Approved by:



Date: 7/26/05

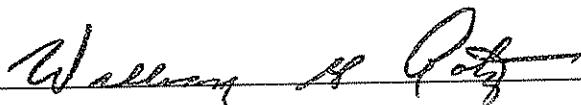
Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 8

Project Name:	505 SANTA ROSA AVE	Analysis:	Total Petroleum Hydrocarbons (TPH) by GC/MS			
Project No:	691.070	Method:	8260TPH			
		Prep Meth:	SW5030B			
Field ID:	MW-3	Lab Samp ID:	4599-3			
Descr/Location:	MW-3	Rec'd Date:	07/13/2005			
Sample Date:	07/13/2005	Prep Date:	07/18/2005			
Sample Time:	1018	Analysis Date:	07/18/2005			
Matrix:	Water	QC Batch:	20050718			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.40	0.50	PQL	5.5	MG/L	10
SURROGATE AND INTERNAL STANDARD RECOVERIES:				103%		1
4-Bromofluorobenzene			86-115 SLSA			

Approved by:



Date: 7/26/05

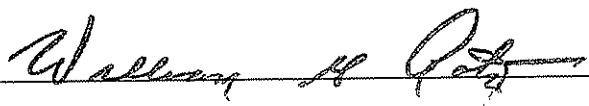
Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 9

Project Name:	505 SANTA ROSA AVE	Analysis:	Total Petroleum Hydrocarbons (TPH) by GC/MS			
Project No:	691.070	Method:	8260TPH			
		Prep Meth:	SW5030B			
Field ID:	MW-4	Lab Samp ID:	4599-4			
Descr/Location:	MW-4	Rec'd Date:	07/13/2005			
Sample Date:	07/13/2005	Prep Date:	07/18/2005			
Sample Time:	1103	Analysis Date:	07/18/2005			
Matrix:	Water	QC Batch:	20050718			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.04	0.05	PQL	ND	MG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	86-115	SLSA		103%		1

Approved by:



Date: 7/26/05

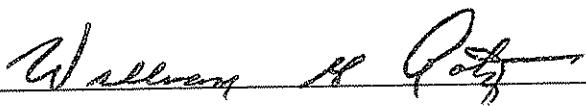
Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 10

Project Name:	505 SANTA ROSA AVE	Analysis:	Total Petroleum Hydrocarbons (TPH) by GC/MS			
Project No:	691.070	Method:	8260TPH			
		Prep Meth:	SW5030B			
Field ID:	MW-5	Lab Samp ID:	4599-5			
Descr/Location:	MW-5	Rec'd Date:	07/13/2005			
Sample Date:	07/13/2005	Prep Date:	07/18/2005			
Sample Time:	1216	Analysis Date:	07/18/2005			
Matrix:	Water	QC Batch:	20050718			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.80	1.0	PQL	36.	MG/L	20
SURROGATE AND INTERNAL STANDARD RECOVERIES:						1
4-Bromofluorobenzene	86-115	SLSA	102%			

Approved by:



Date:

7/26/05

QA/QC Report
Method Blank Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 11

QC Batch:	20050718	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX			
Matrix:	Water	Method:	8260FAB			
Lab Samp ID:	4599MB	Prep Meth:	SW5030B			
Analysis Date:	07/18/2005	Prep Date:	07/18/2005			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Methyl-tert-butyl ether (MTBE)	0.38	1.0	PQL	ND	UG/L	1
Ethyl tert-butyl ether (ETBE)	0.30	1.0	PQL	ND	UG/L	1
tert-Amyl methyl ether (TAME)	0.26	1.0	PQL	ND	UG/L	1
Di-isopropyl ether (DIPE)	0.37	1.0	PQL	ND	UG/L	1
tert-Butyl alcohol (TBA)	2.4	10.	PQL	ND	UG/L	1
1,2-Dichloroethane	0.30	0.50	PQL	ND	UG/L	1
1,2-Dibromoethane	0.30	0.50	PQL	ND	UG/L	1
Benzene	0.27	0.50	PQL	ND	UG/L	1
Toluene	0.25	0.50	PQL	ND	UG/L	1
Ethylbenzene	0.25	0.50	PQL	ND	UG/L	1
Xylenes	0.25	0.50	PQL	ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	86-118	SLSA		99%		1
Toluene-d8	88-110	SLSA		100%		1
Dibromofluoromethane	86-115	SLSA		100%		1

QA/QC Report
Method Blank Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 12

QC Batch:	20050718	Analysis:	Total Petroleum Hydrocarbons (TPH) by			
Matrix:	Water	Method:	8260TPH			
Lab Samp ID:	4599MB	Prep Meth:	SW5030B			
Analysis Date:	07/18/2005	Prep Date:	07/18/2005			
Basis:	Not Filtered	Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
Gasoline Range Organics (C5-C12)	0.04	0.05	PQL	ND	MG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene	86-115	SLSA		104%		1

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

QC Batch: 20050718
 Matrix: Water
 Lab Samp ID: 4599MS
 Basis: Not Filtered

Page: 13

Project Name: 505 SANTA ROSA AVE

Project No.: 691.070
 Field ID: MW-1
 Lab Ref ID: 4599-1

Analyte	Analysis Method	Spike Level DMS		Sample Result	MS	Spike Result DMS	Units	% Recoveries		Acceptance Criteria	
		MS	DMS					MS	DMS	RPD	MSA
1,2-Dibromoethane	8260FAB	10.0	10.0	ND	10.8	10.8	UG/L	108	108	0.00	130-70 MSA 20MSP
1,2-Dichloroethane	8260FAB	10.0	10.0	ND	10.3	10.2	UG/L	103	102	0.98	130-70 MSA 20MSP
Benzene	8260FAB	10.0	10.0	ND	11.0	10.9	UG/L	110	109	0.91	127-76 MSA 20MSP
Di-isopropyl ether (DIPE)	8260FAB	10.0	10.0	ND	8.31	8.94	UG/L	83.1	89.4	7.3	130-70 MSA 20MSP
Ethyl tert-butyl ether (ETBE)	8260FAB	10.0	10.0	ND	8.21	8.80	UG/L	82.1	88.0	6.9	130-70 MSA 20MSP
Ethylbenzene	8260FAB	10.0	10.0	ND	10.8	11.7	UG/L	108	117	8.0	130-70 MSA 20MSP
Methyl-tert-butyl ether (MTBE)	8260FAB	10.0	10.0	ND	8.22	8.52	UG/L	82.2	85.2	3.6	130-70 MSA 20MSP
Toluene	8260FAB	10.0	10.0	ND	10.4	10.8	UG/L	104	108	3.8	125-76 MSA 20MSP
Xylenes	8260FAB	30.0	30.0	ND	32.1	33.7	UG/L	107	112	4.6	130-70 MSA 20MSP
tert-Amyl methyl ether (TAME)	8260FAB	10.0	10.0	ND	7.93	8.75	UG/L	79.3	87.5	9.8	130-70 MSA 20MSP
tert-Butyl alcohol (TBA)	8260FAB	50.0	50.0	ND	39.7	35.9	UG/L	79.4	71.8	10	140-60 MSA 25MSP
4-Bromofluorobenzene	8260FAB	100.	100.	103.	99.	101.	PERCENT	99.0	101	2.0	118-86 SLSA 20SLSP
Dibromofluoromethane	8260FAB	100.	100.	99.	101.	100.	PERCENT	101	100	1.0	115-86 SLSA 20SLSP
Toluene-d8	8260FAB	100.	100.	100.	100.	102.	PERCENT	100	102	2.0	110-88 SLSA 20SLSP

QA/QC Report
Matrix Spike/Duplicate Matrix Spike Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4599 Date: 07/26/2005

Page: 14

QC Batch: 20050718
Matrix: Water
Lab Samp ID: 4599MS
Basis: Not Filtered

Project Name: 505 SANTA ROSA AVE
Project No.: 691.070
Field ID: MW-4
Lab Ref ID: 4599-4

Analyte	Analysis Method	Spike Level MS	Sample Result	Spike Result DMS	Units	% Recoveries			Acceptance Criteria	RPD
						MS	DMS	RPD		
Gasoline Range Organics (C5-C12)	8260TPH	0.50	ND	0.59	0.61	MG/L	118	122	3.3	130-70 MSA 20MSP
4-Bromofluorobenzene	8260TPH	100.	100.	103.	101.	PERCENT	101	101	0.00	115-86 SLSA 20SLSP

Chain-of-Custody Form

APPENDIX D

Clearwater Group Environmental Services Data



updated on 3/15/05

Explanation:

DTB = Depth to Bottom

DTW = Depth to Water

ST = Saturated Thickness (DTB-DTV) must be > 1 foot

CV = Casting Volume (ST x cf)

PV = Purge Volume (standard 3 x CV, well development 10 x CV)

SPI = Thickness of Separate Phase Liquid

Conversion Factors (cf)

2-inch diameter well cf = 0.16 gal/ft

4-inch diameter well cf = 0.65 gal/ft

6-inch diameter well cf ≈ 1.44 gal.ft



Report Number : 44785

Date : 7/19/2005

Jim Ho
Clearwater Group, Inc.
229 Tewksbury Avenue
Point Richmond, CA 94801

Subject : 8 Water Samples
Project Name : 421 SANTA ROSA
Project Number : AB021G

Dear Mr. Ho,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

A handwritten signature in black ink, appearing to read "Joel Kiff".

Joel Kiff



Report Number: 44785

Date: 7/19/2005

Project Name: 421 SANTA ROSA

Project Number: AB021G

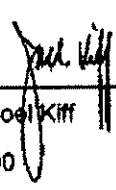
Sample: MW-6

Matrix: Water

Lab Number: 44785-01

Sample Date: 7/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	7/15/2005
Toluene - d8 (Surrogate)	89.1		% Recovery	EPA 8260B	7/15/2005
4-Bromofluorobenzene (Surrogate)	92.4		% Recovery	EPA 8260B	7/15/2005

Approved By: 
Joel Kiff



Report Number : 44785

Date : 7/19/2005

Project Name : 421 SANTA ROSA

Project Number : AB021G

Sample : MW-7	Matrix : Water			Lab Number : 44785-02	
Sample Date : 7/13/2005	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Methyl-t-butyl ether (MTBE)	2.0	0.50	ug/L	EPA 8260B	7/15/2005
TPH as Gasoline	64	50	ug/L	EPA 8260B	7/15/2005
Toluene - d8 (Surrogate)	97.4		% Recovery	EPA 8260B	7/15/2005
4-Bromofluorobenzene (Surrogate)	104		% Recovery	EPA 8260B	7/15/2005

Approved By: 
Joel Kiff



Report Number: 44785

Date: 7/19/2005

Project Name: 421 SANTA ROSA

Project Number: AB021G

Sample: MW-8

Matrix: Water

Lab Number: 44785-03

Sample Date: 7/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Methyl-t-butyl ether (MTBE)	2.3	0.50	ug/L	EPA 8260B	7/15/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	7/15/2005
Toluene - d8 (Surrogate)	90.6		% Recovery	EPA 8260B	7/15/2005
4-Bromofluorobenzene (Surrogate)	93.1		% Recovery	EPA 8260B	7/15/2005

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95618 530-297-4800



Report Number : 44785

Date : 7/19/2005

Project Name : 421 SANTA ROSA

Project Number : AB021G

Sample : MW-9

Matrix : Water

Lab Number : 44785-04

Sample Date : 7/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Toluene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
Methyl-t-butyl ether (MTBE)	3.5	0.50	ug/L	EPA 8260B	7/15/2005
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	7/15/2005
Toluene - d8 (Surrogate)	92.3		% Recovery	EPA 8260B	7/15/2005
4-Bromofluorobenzene (Surrogate)	91.8		% Recovery	EPA 8260B	7/15/2005

Approved By: Joe Kiff



Report Number : 44785

Date : 7/19/2005

Project Name : 421 SANTA ROSA

Project Number : AB021G

Sample : MW-5	Matrix : Water			Lab Number : 44785-05	
Sample Date : 7/13/2005	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	2.0	0.50	ug/L	EPA 8260B	7/15/2005
Toluene	5.1	0.50	ug/L	EPA 8260B	7/15/2005
Ethylibenzene	140	0.50	ug/L	EPA 8260B	7/15/2005
Total Xylenes	220	0.50	ug/L	EPA 8260B	7/15/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
TPH as Gasoline	7400	150	ug/L	EPA 8260B	7/16/2005
Toluene - d8 (Surr)	94.3		% Recovery	EPA 8260B	7/15/2005
4-Bromofluorobenzene (Surr)	97.2		% Recovery	EPA 8260B	7/15/2005

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800



Project Name : 421 SANTA ROSA

Project Number : AB021G

Report Number : 44785
 Date : 7/19/2005

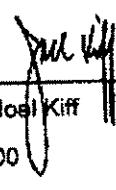
Sample : MW-2A

Matrix : Water

Lab Number : 44785-06

Sample Date : 7/13/2005

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	180	0.50	ug/L	EPA 8260B	7/15/2005
Toluene	1.4	0.50	ug/L	EPA 8260B	7/15/2005
Ethylbenzene	790	1.5	ug/L	EPA 8260B	7/16/2005
Total Xylenes	13	0.50	ug/L	EPA 8260B	7/15/2005
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	7/15/2005
TPH as Gasoline	6500	150	ug/L	EPA 8260B	7/16/2005
Toluene - d8 (Surrogate)	89.5		% Recovery	EPA 8260B	7/15/2005
4-Bromofluorobenzene (Surrogate)	97.4		% Recovery	EPA 8260B	7/15/2005

Approved By: 
 Joel Kiff

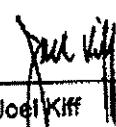


Report Number : 44785
 Date : 7/19/2005

Project Name : 421 SANTA ROSA

Project Number : AB021G

Sample : MW-4	Matrix : Water	Lab Number : 44785-07		
Sample Date : 7/13/2005	Measured Value	Method Reporting Limit	Units	Date Analyzed
Parameter				
Benzene	960	2.5	ug/L	EPA 8260B
Toluene	38	1.5	ug/L	EPA 8260B
Ethylbenzene	220	1.5	ug/L	EPA 8260B
Total Xylenes	140	1.5	ug/L	EPA 8260B
Methyl-t-butyl ether (MTBE)	< 1.5	1.5	ug/L	EPA 8260B
TPH as Gasoline	11000	150	ug/L	EPA 8260B
Toluene - d8 (Surrogate)	94.5		% Recovery	EPA 8260B
4-Bromofluorobenzene (Surrogate)	95.9		% Recovery	EPA 8260B

Approved By: 
 Joel Kiff



Report Number : 44785
 Date : 7/19/2005

Project Name : 421 SANTA ROSA

Project Number : AB021G

Sample : MW-1A	Matrix : Water	Lab Number : 44785-08		
Sample Date : 7/13/2005	Measured Value	Method Reporting Limit	Units	Date Analyzed
Benzene	82	1.0	ug/L	EPA 8260B 7/15/2005
Toluene	14	1.0	ug/L	EPA 8260B 7/15/2005
Ethylbenzene	640	1.0	ug/L	EPA 8260B 7/15/2005
Total Xylenes	1100	2.5	ug/L	EPA 8260B 7/19/2005
Methyl-t-butyl ether (MTBE)	< 1.0	1.0	ug/L	EPA 8260B 7/15/2005
TPH as Gasoline	23000	250	ug/L	EPA 8260B 7/19/2005
1,2-Dichloroethane	< 1.0	1.0	ug/L	EPA 8260B 7/15/2005
Toluene - d8 (Surrogate)	96.4		% Recovery	EPA 8260B 7/15/2005
4-Bromofluorobenzene (Surrogate)	96.2		% Recovery	EPA 8260B 7/15/2005
Dibromofluoromethane (Surrogate)	106		% Recovery	EPA 8260B 7/15/2005
1,2-Dichloroethane-d4 (Surrogate)	94.4		% Recovery	EPA 8260B 7/15/2005

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